

IT ISN'T ALWAYS A PLUGGED UP FILTER THAT CAUSES A 3208 TO STOP RUNNING

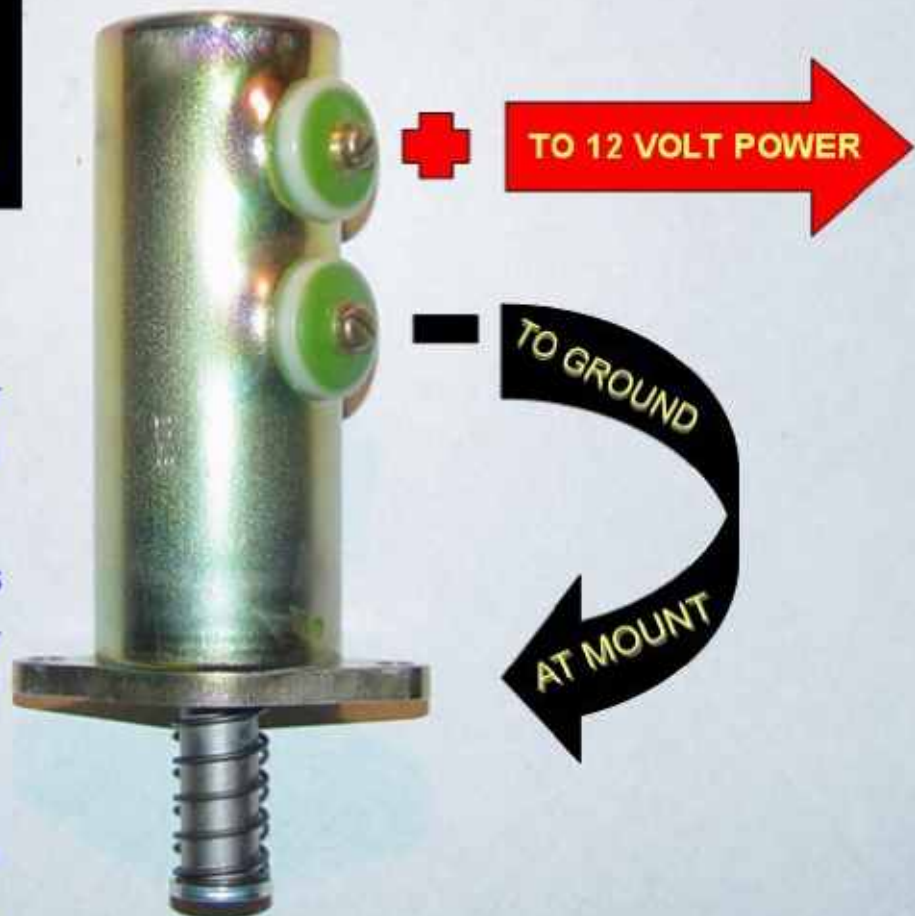
It is frustrating enough at times when operating a Caterpillar 3208 powered 'Bird, especially when climbing steep hills, when all of a sudden the engine stops running, as if it was starved of fuel. So you get the spare filters out and get to work changing them on the side of the road and she cranks right up and you head off down the road and it does the same thing again shortly thereafter, surely the filters are not plugged up already are they?

Well here's another issue that seems to come up every so often and that is either a bad fuel shutoff solenoid, or a broken wire coming from the ignition switch that activates this solenoid, or it could even be the ignition switch itself. I will attempt here to show some options that can solve this problem for you. First check to HEAR if the solenoid is even operating by opening up the engine doghouse cover and then while turning the ignition switch ON and OFF listen for a distinct CLICK coming from the solenoid located on top of the injector pump, which is located near the top front of the engine, behind the alternator. Next see what the actual voltage is at the positive screw on the solenoid with the ignition switch turned on, on mine it was 9 volts and that isn't enough to operate it properly, this is a fairly common problem of LOW VOLTAGE being supplied to the fuel injector pump shutoff solenoid, which can be resolved in different ways.



3208NA FUEL SHUT OFF SOLENOID

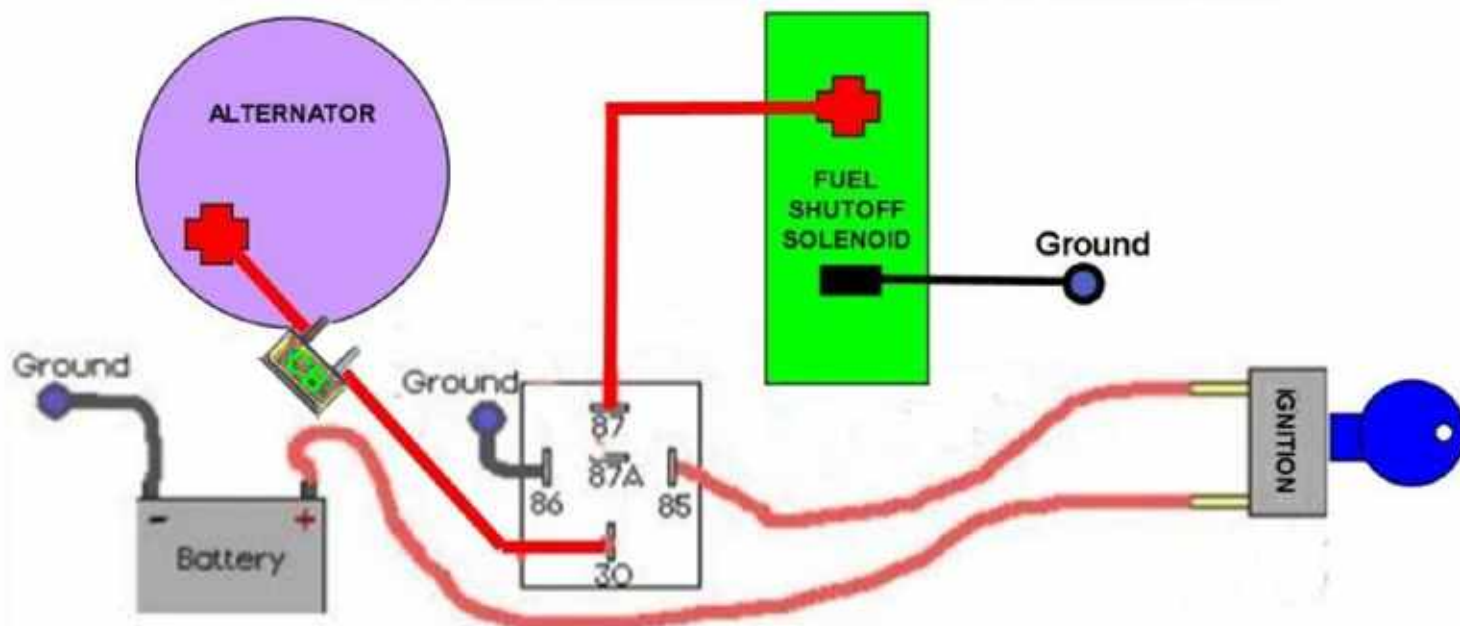
I JUST PICKED UP A NEW REPLACEMENT FUEL SHUT OFF SOLENOID FOR MY CAT 3208NA ENGINE. THE OLD ONE ONLY HAD ONE WIRE TERMINAL THAT WAS CONNECTED TO THE 12 VOLT POWER SOURCE AND THE NEW ONE HAS THE SAME PART NUMBER 6N-9988, BUT IT HAS TWO WIRE TERMINALS, BUT THEY ARE NOT MARKED. I CALLED THE CAT RV HOT LINE 1-877-777-3126 IN PEORIA, ILLINOIS AND THEY SOLVED THE PROBLEM. THE TOP TERMINAL GOES TO THE 12 VOLT POWER SOURCE AND THE BOTTOM TERMINAL IS GROUNDED TO THE BASE MOUNTING BOLT OF THE SOLENOID, CATERPILLAR WILL SELL YOU THE FOUR INCH WIRE FOR THE GROUND, BUT I CHOSE TO JUST MAKE MY OWN. I ALSO GOT THE GASKET PART #4N-0117, THE TOTAL WAS \$123.18 WITH TAX.



Here is one way to solve the low voltage going to the fuel shutoff relay problem on a CAT 3208 injector pump, is to add a Bosch type relay, which is now sold and manufactured under the name TYCO. the drawing below shows just how to do that. This will take the big load off of the ignition switch, placing the load onto the relay.

INSTALLING A RELAY INTO THE FUEL SHUTOFF SOLENOID WIRING

IF YOUR FUEL SHUTOFF SOLENOID IS NOT GETTING THE PROPER VOLTAGE TO IT AND SOMETIMES IS NOT OPENING BECAUSE OF THIS, YOU CAN INSTALL A BOSCH 30 AMP RELAY IN LINE TO HELP REMEDY THE PROBLEM. BELOW IS A "NOT TO SCALE" WIRING DIAGRAM, THAT SHOWS HOW TO WIRE IN THE RELAY, USING THE ALTERNATOR AS THE ACTUAL POWERING SOURCE FOR THE SHUTOFF RELAY AND THE ORIGINAL SOLENOID WIRE THAT IS COMING FROM YOUR IGNITION SWITCH, AS THE RELAY ACTIVATING SOURCE. REMOVE THE WIRE THAT NORMALLY POWERS THE FUEL SHUTOFF SOLENOID AND ATTACH IT TO TERMINAL # 85 ON THE RELAY. RUN A NEW WIRE FROM THE POSITIVE POST ON THE ALTERNATOR TO TERMINAL # 30 ON THE RELAY. RUN A NEW WIRE FROM TERMINAL # 87 ON THE RELAY TO THE POSITIVE POST ON THE SHUTOFF SOLENOID (THIS IS WHERE THE ORIGINAL WIRE WAS ATTACHED) THEN RUN A WIRE FROM TERMINAL # 86 ON THE RELAY TO A GOOD CLEAN GROUND.



NOTE: THERE SHOULD ALSO BE A CIRCUIT BREAKER PLACED INLINE ON THE WIRE COMING FROM THE ALTERNATOR POSITIVE AND TERMINAL 30 ON THE CIRCUIT BREAKER
SOME OF THE OLDER FUEL SHUTOFF SOLENOIDS DO NOT HAVE A GROUND WIRE ON THEM, BUT ARE GROUNDED THROUGH THE SOLENOID HOUSING TO THE INJECTOR PUMP HOUSING

THE BOSCH / TYCO RELAYS ARE AVAILABLE AT

<http://www.pbases.com/iamflagman/image/56964525>

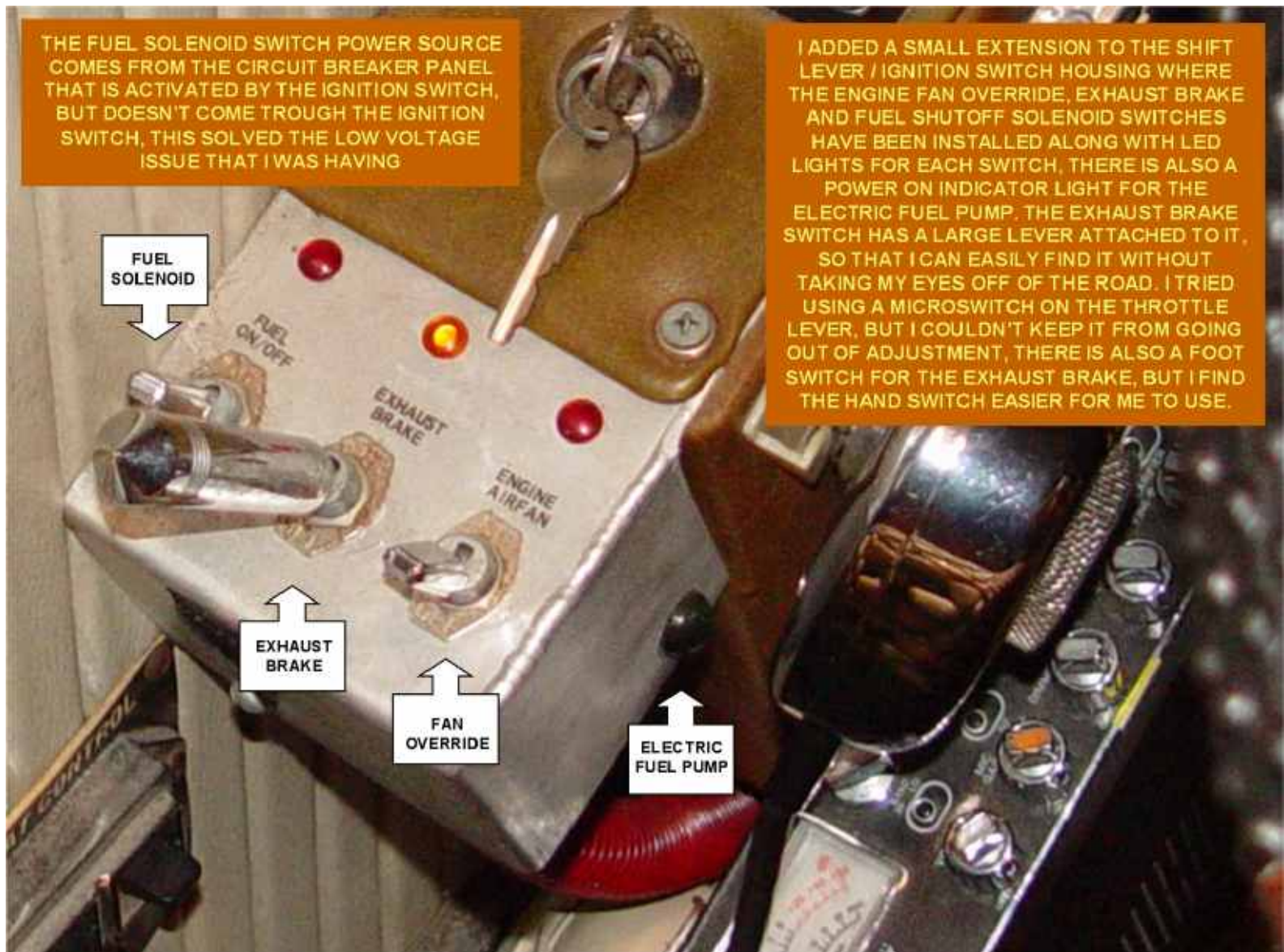
Sometimes it takes replacing the ignition switch, as sometimes they go bad because of all of the systems that are getting their power through the switch. The part numbers are NAPA; KS6599 CARQUEST; US69 these have spade connectors on them, but some of the forum members switched over to the screw mount connector style switch, which can be purchased from the same sources, by comparing the spade connector style switch with the screw mount styles in their parts catalogs.



I went a step further and added a separate 50 amp toggle switch found in truck stops, onto an axillary panel that gets its 12 volt power source from the ignition switch activated circuit breakers located behind the drivers side headlight door, I then routed a wire from the switch over to the Fuel Shutoff Solenoid, thus removing that particular load from the ignition switch, this adds one more sequence into the engine starting and shutdown process, but it also acts as somewhat of a theft deferent, especially if the thief can't read as I have it marked as FUEL ON/OFF

THE FUEL SOLENOID SWITCH POWER SOURCE COMES FROM THE CIRCUIT BREAKER PANEL THAT IS ACTIVATED BY THE IGNITION SWITCH, BUT DOESN'T COME TROUGH THE IGNITION SWITCH, THIS SOLVED THE LOW VOLTAGE ISSUE THAT I WAS HAVING

I ADDED A SMALL EXTENSION TO THE SHIFT LEVER / IGNITION SWITCH HOUSING WHERE THE ENGINE FAN OVERRIDE, EXHAUST BRAKE AND FUEL SHUTOFF SOLENOID SWITCHES HAVE BEEN INSTALLED ALONG WITH LED LIGHTS FOR EACH SWITCH, THERE IS ALSO A POWER ON INDICATOR LIGHT FOR THE ELECTRIC FUEL PUMP. THE EXHAUST BRAKE SWITCH HAS A LARGE LEVER ATTACHED TO IT, SO THAT I CAN EASILY FIND IT WITHOUT TAKING MY EYES OFF OF THE ROAD. I TRIED USING A MICROSWITCH ON THE THROTTLE LEVER, BUT I COULDN'T KEEP IT FROM GOING OUT OF ADJUSTMENT, THERE IS ALSO A FOOT SWITCH FOR THE EXHAUST BRAKE, BUT I FIND THE HAND SWITCH EASIER FOR ME TO USE.



One of my symptoms was the engine shutting off and then immediately back on after going over a big bump on the road, it turned out that the spade connector on the back of the ignition switch that connected to the end of the wire going to the solenoid had become loose and was getting hot and thus loosened up the wire inside of the connector causing the intermittent shutdown and the low voltage reading at the solenoid. So don't wait until you find your self stranded on the side of the road with this problem, make it one of your important projects on your 'Bird real soon.

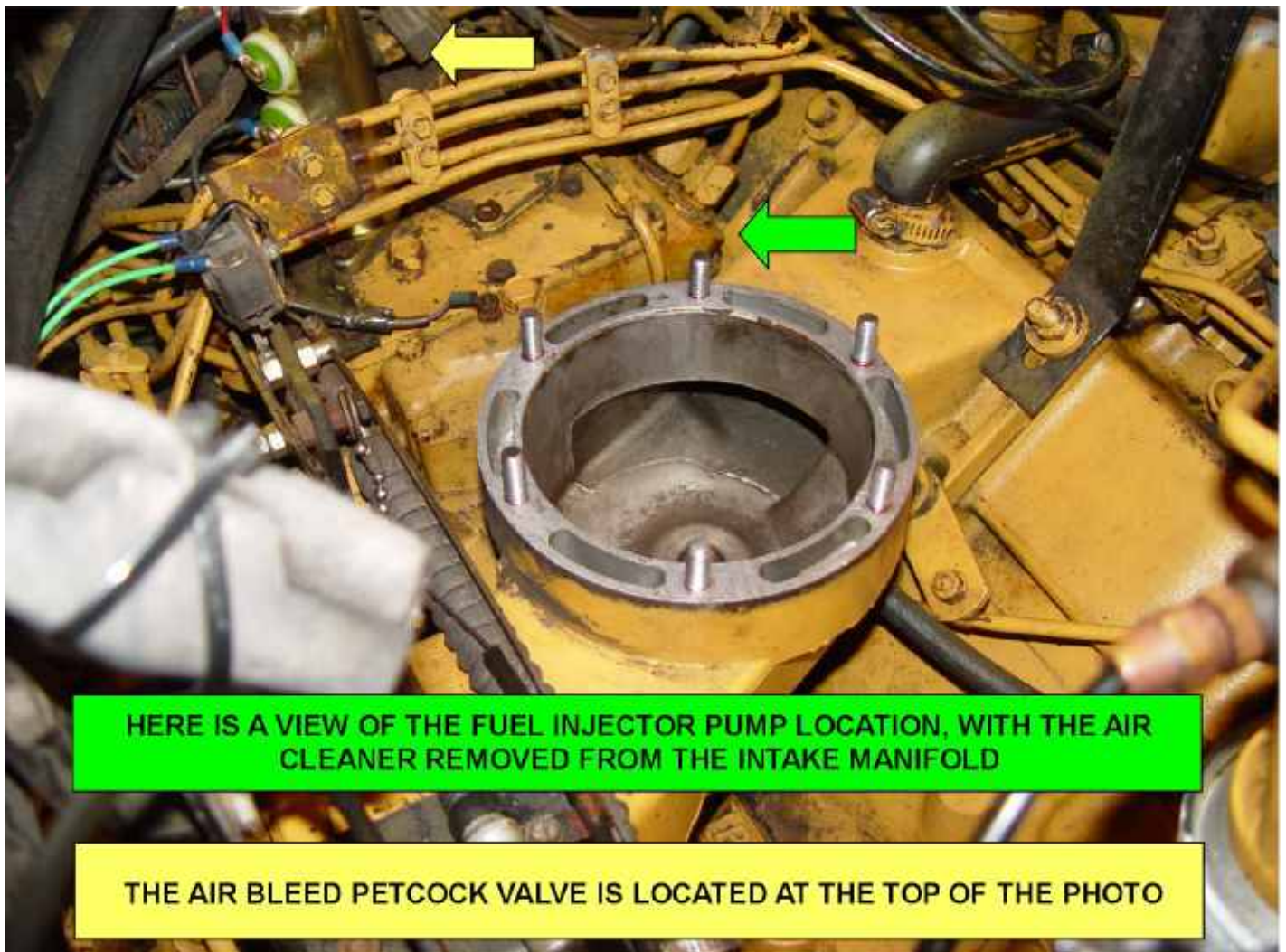


CAT 3208 INJECTOR PUMP AND FUEL SHUTOFF RELAY

HERE IS THE CAT 3208 INJECTOR PUMP AND FUEL SHUTOFF RELAY REMOVED FROM THE ENGINE



ON A 3208NA VERSION IN A FC MODEL 'BIRD, REMOVING THE AIR CLEANER IS NOT NECESSARY TO DO THE MODIFICATIONS THAT WE HAVE BEEN DISCUSSING HERE, BUT IT WAS DONE FOR ILLUSTRATION PURPOSES



HERE IS A VIEW OF THE FUEL INJECTOR PUMP LOCATION, WITH THE AIR CLEANER REMOVED FROM THE INTAKE MANIFOLD

THE AIR BLEED PETCOCK VALVE IS LOCATED AT THE TOP OF THE PHOTO